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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,238	06/05/2001	Kiyoshi Ueyoko	0229-0645P	5956

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/06/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/873,238

Applicant(s)

UEYOKO, KIYOSHI

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on June 5, 2000. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ian (JP 08-040026) in view of Hanada (JP 05-024418). As best depicted in Figures 1, 3, and 5, Ian teaches a radial, pneumatic tire construction in which a carcass ply is turned around respective bead cores, such that the radially outer end of said carcass ply terminates against the radially outer surface of said bead cores. In this instance, the radially outer end of said carcass ply extends over at least 80% of the radially outer surface of the respective bead cores. The reference, however, is silent with respect to the inclusion of an organic fiber cord layer that covers the respective bead cores (between radially outer end of said carcass ply and radially outer surface of bead cores). In any event, it is well known in the tire industry to surround a bead core with a covering layer (i.e. organic fiber cord layer) in order to (a) prevent contact between the carcass cords and the bead reinforcing elements and (b) improve driving stability

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without reducing ride comfort (high rigidity- attributed to using steel chafers and high hardness bead fillers), as evidenced by Hanada (Paragraphs 2-4). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an organic fiber cord layer in the bead design of Ian, in view of Hanada, for the benefits detailed above.

Regarding claim 1, while Hanada fails to expressly suggest the height of the organic fiber cord layer, it is clearly evident that the distance between the carcass cords and the bead reinforcing elements in Ian would fall within the broad range of the claimed invention. In this instance, applicant requires that the relevant distance be between 0.05 and 1.0 times the section height of the bead core. As depicted in Figures 1, 3, and 5, the bead cores are formed of about 6 to 8 rows of reinforcing elements (defines bead core section height). The relevant distance, on the other hand, is defined by the lower topping rubber of the carcass, the thickness or height of the organic fiber cord layer, and any rubber in the bead core. As such, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the relevant distance to be a fraction of the bead core section height since (a) the organic fiber cord layer would be expected to have a height that is approximately equal to a single row of bead reinforcing elements and (b) the remaining part of the relevant distance (topping rubber and bead rubber) would not be expected to produce a total height that exceeds the section height of the bead core.

As per claims 2-4, Figures 1, 3, and 5 include a reinforcing layer of cords that are disposed radially outside the radially outer part of the carcass ply. The reinforcing layer

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is formed of cords that are inclined at an angle of approximately 0 degrees (substantially along hoop direction) with respect to the circumferential direction.

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata (US 4,387,759) in view of Nagai (US 6,135,182), Izumi (JP 11-321244), and Hanada. As best depicted in Figure 1, Obata is directed to a pneumatic tire construction in which a carcass turnup portion is arranged between a bead filler and a rubber chafer, wherein said bead filler has a hardness that is equal to or greater than the hardness of said rubber chafer (Column 3, Lines 51-57). Although the reference describes the hardness and not the modulus, the properties have a direct relationship such that a higher modulus equates to a higher hardness and one of ordinary skill in the art at the time of the invention would have expected the modulus values of the claimed invention to be present in Obata as they represent conventional and well known ranges, as evidenced by Nagai (Column 6, Lines 30-33). Thus, Obata in view of Nagai suggest a pneumatic tire construction that is only devoid of (a) a wound carcass turnup portion and (b) an organic fiber cord layer surrounding the respective bead cores. First, as evidenced by Izumi, it is well known to wind a carcass turnup portion versus radially extending it into the middle sidewall region in order to eliminate the buildup of stresses and ultimately enhance bead durability. Second, in view of Hanada, one of ordinary skill in the art at the time of the invention would have found it obvious to include an organic fiber cord layer around each bead core in order to control the spacing between carcass cords and bead reinforcing elements and improve driving stability without significantly increasing rigidity (reduces riding comfort). As such, it would have been obvious to one

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of ordinary skill in the art at the time of the invention to wind the carcass turnup portion of Obata against the radially outer surface of the respective bead cores, in view of Izumi, and include an organic fiber cord layer, in view of Hanada, for the benefits detailed above.

Regarding the modification of the carcass turnup portion, it should be noted that Obata recognizes the aforementioned problems of exposed turnup ends, those being the buildup of stresses and propagation of cracks (Column 1, Lines 21-25). In particular, Obata requires the presence of a cover rubber 17 at the turnup end in order to eliminate the aforementioned problems. In view of Izumi, however, the problems are eliminated without the need of an additional rubber layer (facilitates processing and reduces tire weight), such that a gradual decrease in rigidity is still present due to the different rubber compositions used in the bead filler and the rubber chafer. As such, one of ordinary skill in the art at the time of the invention would have been motivated to incorporate the carcass turnup structure of Izumi in the tire design of Obata.

With respect to the inclusion of an organic fiber cord layer, such tire components are extensively used in a variety of tires in order to prevent contact between the carcass cords and the bead reinforcing elements while improving driving stability, as evidenced by Hanada. It should also be noted that Hanada describes embodiments in which more than one organic fiber cord layer is included.

Lastly, with respect to the distance between the carcass cords and the bead reinforcing elements, it is clearly evident that the relevant distance would fall within the extremely broad range of the claimed invention since the organic fiber cord layer would

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not have such an extreme thickness or height to produce a relevant distance that is greater than the section height of the bead core.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maeda (JP 64-30808) discloses a pneumatic tire construction in which the carcass turnup portion is sandwiched between the radially outer surface of a bead core and a corresponding bead filler. Guiliano (GB 2,064,442) teaches a unique bead reinforcement construction for a radial pneumatic tire comprising, among other things, an organic fiber cord layer that can be used with or without the bead rubber layers. Nock (GB 2,336,344), as best depicted in Figure 3, discloses a pneumatic tire construction in which the carcass turnup portion is sandwiched between the radially outer surface of a bead core and a radially outer reinforcing layer. In this instance, the carcass turnup portion does not terminate adjacent the radially outer end of the bead but rather at a position that is radially inward of the respective bead cores.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

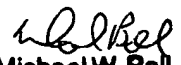
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

November 1, 2002


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700